

days old also have been observed attempting to mate with dead females.

In good light the parasites usually do not remain motionless for more than a few seconds. This is one of the most active parasites the writer has yet observed, its movements being extremely rapid and almost constant, with frequent changing, or reversing of direction, so that it is difficult to make microscopic observations of living adults.

THE NORTH AMERICAN SPECIES OF THE GENUS MEGALOTHRIPS UZEL (Thysanoptera, Phlaeothripidae)

By J. C. CRAWFORD, *Bureau of Entomology and Plant Quarantine, United States Department of Agriculture*

Up to the present time three North American species have been described in this genus, but *hesperus* Moulton, having the characters of *Megathrips*, was transferred to that genus by Karny in 1919. To the two remaining in the genus is now added a new species from Oregon.

KEY TO FEMALES OF MEGALOTHRIPS

- 1. Antennae entirely dark; tube about 0.9 the length of head —
 - *spinosus* Hood
 - Antennal segments 3 and 4 at least partly yellow..... 2
- 2. Antennal segment 3 yellow in basal three-fourths, 4 in basal two-fifths, other segments all dark; tube about 0.75 the length of head —
 - *picticornis* Hood
 - Antennal segment 3 yellow, except extreme tip, 4 in basal three-fifths, 5 in basal one-half, 6 lightened or yellow basally; tube about as long as head..... *schuhi*, new species

Megalothrips schuhi, new species

Female (macropterous holotype).—Length (distended) about 5.15 mm. Black, antennal segment 2 lighter apically, 3 yellow, with extreme apex brown, 4 yellow in basal three-fifths, 5 in basal one-half, 6 distinctly lightened or yellow in basal one-fourth; tarsi light brownish; wings almost clear, each with a median, narrow, longitudinal, dark stripe in basal half; major body setae pointed, brown.

Head elevated dorsally along median line as normal in the genus, cheeks in outline slightly concave just back of eyes, then somewhat convex to narrow basal collar; posterior ocelli about 2 μ from eyes; postocellar setae well-developed, postoculars situated almost on lateral lateral margins of head, 28 μ back of eyes; cheeks in outline usually with two short setae, dorsal aspect of head with about four pairs of short setae, of which one pair about midway from eyes to base of head

may be longer (46 μ); head dorsally with transverse anastomosing striae, in outline minutely serrulate; antennal segments 3-5 clavate, 6-8 pedicellate; triangular prolongation apically on ventral side of antennal segments apparent only on 6 and 7; sense cone formula: III, 1-1, IV, 2-2, V, 1-1 ¹⁺, VI, 1-1 ¹⁺, VII, 1 dorsally.

Pronotum with transverse, anastomosing lines, those on median portion anteriorly, except extreme foremargin, subreticulate; meso- and metanotum reticulate; forewings with 29 (22-32) accessory setae on posterior margin; epimeron posteriorly fused with pronotum.

Abdomen having tergum 1 with large median lobe reticulate, the small lateral lobes with transverse, anastomosing lines; terga 2-7 each more heavily sclerotized in basal half and more or less distinctly set off from the apical half (especially when treated with caustic), on terga 8 and 9 this separation not distinct and replaced by a darkened line; anterior portion of terga 2-9 in more than median half coarsely reticulate, laterad of which the terga with transverse anastomosing lines; posterior portion of terga with close transverse anastomosing lines; terga 2-7 each with two pairs of wing-retaining setae, the posterior pair of which is much larger and more strongly sigmoid than the anterior; tube with many short setae; sides of tube back of basal enlargement almost straight for most of length, somewhat convergent.

Measurements (in microns): Head, median length 647, greatest width across cheeks 332, greatest width across eyes 300, least width back of eyes 297, least subbasal width 262; eyes, dorsal length 128, ventral length 80, interval 112; frontal process medially extending beyond eyes about 48; prothorax, median length 200, width 512, width, including coxae, 632; ninth tergum length 143, tube (X only) length 640, greatest basal width 164, least subapical width 68; setae, interocellar 70, postocellar 36, postocular 50, anterior angular 48, anterior marginal 44, midlateral 47, epimeral, 176, posterior marginal 100, pair between posterior marginals 30; on tergum IX, 1, 396, 2, 400, 3, 280; on tergum X, both pairs, 260.

Antennae:	1	2	3	4	5	6	7	8
	64	92	176	160	152	120	64	68

Male (macropterous allotype).—Length (distended) about 4.3 mm. Similar to the female in color and form, except for sexual differences, but with smaller measurements. Tergum VI with hornlike processes extending 320 μ beyond apical margin, surpassing apical margin of tergum VII which measures in length from subbasal costa 180 μ , no process on tergum VII, that on VIII minute, wartlike; sternum IX measured at side, extending 123 μ beyond apical margin of its tergum, the turned-up sides somewhat prolonged, fingerlike, the ventral portion between turned-up sides strongly convex apically; tergum IX 181 μ long, tube (X only) 474 μ .

Antennae:	1	2	3	4	5	6	7	8
	64	84	152	132	132	104	62	65

Type locality.—Portland, Oregon.

Holotype female July 8, 1940, allotype male July 1, 1940, ex breeding cages of *Cryptorhynchus lapathi*, J. Schuh, collector.

Type catalog No. 58333, United States National Museum.

Paratypes from the same breeding cages as follows: July 4, 16 females, 2 males; July 5, 3 females, 2 males; July 6, 19 females, 3 males; July 7, 2 females; July 8, 58 females, 3 males; July 9, 2 females; all 1940. Also 1 female from the gall of a goldenrod gall fly, Portland, Oregon, April 1940, J. Schuh, collector.

The species is named after J. Schuh, who collected all of the material seen.

BOOK REVIEW

FLEAS OF WESTERN NORTH AMERICA. By Clarence Andresen Hubbard. 533 pp., five plates and 235 sets of figures. The Iowa State College Press, Ames, Iowa, 1947. \$6.00. -

To date there has been no modern reference to which one could turn in an effort to determine the species of the sixty-six genera of fleas known to occur in western North America. This book presents the available information on the classification, host relationship, and distribution of the known fleas west of the one hundredth meridian.

A chapter on the medical importance of fleas follows one on the history of Siphonaptera research. Field and laboratory techniques are next discussed and then there is a very short chapter on the anatomy of fleas. A very large section on systematic classification follows. The classifications of Fox (1940) and Ewing and Fox (1943) are quoted regarding suborders and/or families.

The book is arranged according to families and keys to the genera and species are given. In the consideration of each species there are notes on such subjects as: structure of head, modified segments, records, length, range, sex ratio, season distribution, bionomics, and, occasionally, economic and medical importance and control. There are drawings of important taxonomic characters for virtually all of the 230 species and subspecies listed. One new genus and four new subspecies are described.

The summary includes five pages of tables, constituting a geographic index of western fleas. There is also a two-page index of the fleas of the eastern United States based upon the records of Fox (1940). The selection of the one hundredth meridian as a delimiting factor means that much of North Dakota, South Dakota, Nebraska, Kansas, Texas and Oklahoma is deleted. Records from Mexico, D. F. and Nuevo Leon, Mexico, are apparently deleted for the same reason.